

### AMENDMENT TO THE CLAIMS

The listing of claims below replaces all prior versions, and listings of claims in the application:

Listing of Claims:

Claims 1-50. (Canceled)

51. (Previously presented) A microfluidic device comprising:

- a. a substrate;
- b. a conduit within said substrate, said conduit having an inner diameter between 0.1  $\mu\text{m}$  and 1000  $\mu\text{m}$ , and having first and second ends; and,
- c. a composite mobile element within said conduit between said first and second ends, said mobile element comprising:
  - i. a polymer matrix; and,
  - ii. polymeric particles dispersed within said element;wherein when a fluid pressure is applied to said first end, said element slides away from said first end and towards said second end, and said element only sliding along one axis within said conduit.

52. (Previously presented) The microfluidic device of claim 51, wherein said polymeric particles are not chemically bound to said polymer matrix.

53. (Previously presented) The microfluidic device of claim 51, wherein said polymeric particles are chemically bound to said polymer matrix.
54. (Previously presented) The microfluidic device of claim 51, wherein said polymer matrix contains a polymer of a halogenated acrylate monomer.
55. (Previously presented) The microfluidic device of claim 54 wherein the halogenated acrylate monomer is a fluorinated acrylate.